

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2004/000939

A. CLASSIFICATION OF SUBJECT MATTER

IPC⁷: G01N33/48, B01D59/28, C01B4/00;

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC⁷: G01N33, B01D59, C01B4

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Chinese Patent Document (1985—)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNPAT, WPI, EPODOC, PAJ: hydrogen, deuterium, exchange, isotope, virus, microorganism, biological sample

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	Jiangshen Mao, et al., "confirmation of deuterium/hydrogen exchange in virus particles", Science Letter, Jan 2004, vol.49, no.1, page 95-98, see the whole document	1-5
A	Coleman M L, et al., "Reduction of water with zinc for hydrogen isotope analysis", Anal. Chem, 1982,54, page 993-995, see the whole document	1-12
A	Wu R, et al., "Thermostabilization of live virus vaccines by heavy water (D ₂ O)", Vaccine, 1995,13(12), page 1058-1063, see the whole document	1-12
A	Tanweer A, et al., "Importance of clean metallic zinc for hydrogen isotope analysis", Anal. Chem., 1990, 62, page 2158-2160, see the whole document	1-12
A	Xu Wei, et al., "Measurement of hydrogen-deuterium ratio and particle recycling", Nuclear Fusion and Plasma Physics, June 2001, vol.21, no.2, page 119-123, see the whole document	1-12
A	US,A,5272054 (Switchenko et al.), 21.Dec 1993 (21.12.1993), see the whole document	1-12

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim (S) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search
28.Jan 2005

Date of mailing of the international search report
03 . 2005 (03 . 03 . 2005)

Name and mailing address of the ISA/

Authorized officer

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International application No.
PCT/CN2004/000939

Information on patent family members			
Patent document Cited in search report	Publication date	Patent family members	Publication date
US5272054A	21.Dec 1993	None	

国际检索报告

国际申请号
PCT / CN2004/000939

A. 主题的分类

IPC⁷: G01N33/48, B01D59/28, C01B4/00;

按照国际专利分类表(IPC)或者同时按照国家分类和 IPC 两种分类

B. 检索领域

检索的最低限度文献(标明分类系统和分类号)

IPC⁷: G01N33, B01D59, C01B4

包含在检索领域中的除最低限度文献以外的检索文献

中国专利文献(1985-)

在国际检索时查阅的电子数据库(数据库的名称, 和使用的检索词(如使用))

中国期刊网专题全文数据库, CNPAT, WPI, EPODOC, PAJ;

氢, 氘, 置换, 同位素, 病毒, 微生物, 生物样品, hydrogen, deuterium, exchange, isotope, virus, microorganism, biological sample

C. 相关文件

类 型*	引用文件, 必要时, 指明相关段落	相关的权利要求
P.X	毛江森等, “病毒颗粒中氢氘置换的证实”, 科学通报, 2004 年 1 月, 第 49 卷, 第 95-98 页, 参见全文	1-5
A	Coleman M L 等, “Reduction of water with zinc for hydrogen isotope analysis”, Anal. Chem., 1982, 54, 第 993-995 页, 全文	1-12
A	Wu R 等, “Thermostabilization of live virus vaccines by heavy water(D ₂ O)”, Vaccine, 1995, 13 (12), 第 1058-1063 页, 全文	1-12
A	Tanweer A 等, “Importance of clean metallic zinc for hydrogen isotope analysis”, Anal. Chem., 1990, 62, 第 2158-2160 页, 全文	1-12
A	徐伟等, “氢氘比的测量和粒子再循环”, 核聚变和等离子体物理, 2001 年 6 月, 第 21 卷第 2 期, 第 119-123 页, 全文	1-12
A	US,A,5272054 (Switchenko 等), 21.12 月 1993 (21.12.1993), 全文	1-12

☐ 其余文件在 C 栏的续页中列出。

☒ 见同族专利附件。

* 引用文件的具体类型:

“A” 认为不特别相关的表示了现有技术一般状态的文件

“E” 在国际申请日的当天或之后公布的在先申请或专利

“L” 可能对优先权要求构成怀疑的文件, 为确定另一篇引用文件的公布日而引用的或者因其他特殊理由而引用的文件

“O” 涉及口头公开、使用、展览或其他方式公开的文件

“P” 公布日先于国际申请日但迟于所要求的优先权日的文件

“T” 在申请日或优先权日之后公布, 与申请不相抵触, 但为了理解发明之理论或原理的在后文件

“X” 特别相关的文件, 单独考虑该文件, 认定要求保护的发明不是新颖的或不具有创造性

“Y” 特别相关的文件, 当该文件与另一篇或者多篇该类文件结合并且这种结合对于本领域技术人员为显而易见时, 要求保护的发明不具有创造性

“&” 同族专利的文件

国际检索实际完成的日期

28.1 月 2005

国际检索报告邮寄日期

03. 3 月 2005 (03. 03. 2005)

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国际检索报告
关于同族专利的信息

国际申请号
PCT/CN2004/000939

检索报告中引用的 专利文件	公布日期	同族专利	公布日期
US5272054A	21.12 月 1993	无	